Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the matter of	)	
	)	
Unlicensed Operation in the Band 3650 – 3700 MHz	)	ET Docket No. 04-151
	)	
Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band	)	ET Docket No. 02-380
	)	
Amendment of the Commission's Rules With Regard to the 3650-3700 MHz Government Transfer Band	)	ET Docket No. 98-237

REPLY COMMENTS OF MOTOROLA, INC.

Motorola, Inc. ("Motorola") respectfully submits these reply comments in response to the *Notice of Proposed Rule Making* ("*NPRM*") in the above-captioned proceeding.[1] In this proceeding, the FCC is proposing rule changes to allow unlicensed devices to operate in either all, or portions of, the 3650-3700 MHz ("3650 MHz") band under flexible technical limitations while relying on smart/cognitive features to prevent interference to incumbent services.

In its initial comments, Motorola stated that it does not concur with the Commission's tentative conclusion that designating the 3650 MHz band primarily for unlicensed uses will maximize the efficient utilization of that band.[2] Motorola argued that the 3650 MHz band is unlikely to supplant the existing unlicensed bands near 2.4 GHz and 5 GHz as a preferred home for product development because it offers neither improved propagation characteristics nor sufficient bandwidth to offset the manufacturing economies of scale derived from international

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[1] *In the Matter of Unlicensed Operation in the Band 3650 - 3700 MHz,* Notice of Proposed Rule Making, ET Docket No. 04-151, FCC 04-100 (April 23, 2004) ("*NPRM"* or *"Notice"*).

[2] Comments of Motorola, ET Docket No. 04-151, submitted July 28, 2004, at 2. Unless otherwise noted, all citations refer to comments filed in ET Docket No. 04-151 on July 28, 2004.

standards and allocations already in place for 2.4 and 5 GHz devices.[3] Motorola also noted that the FCC proposal to entice unlicensed product development in the 3650 MHz band by offering higher operating powers may prove counter-productive as the limited bandwidth available in the band could quickly be impacted by multiple "high powered" unlicensed broadband transmitters operating in the same area.[4]

For these reasons, Motorola indicated that it supports use of the 3650 MHz band on a licensed basis where wireless internet service providers ("WISPs") or other service providers can access the band to provide broadband services for mobile, transportable or fixed backhaul services.[5] Motorola argued that provision of this spectrum on a licensed basis would provide certainty of spectrum access for licensees and provide partial harmonization with many other regions of the world where this band is allocated on a licensed basis.[6]

Other parties offered similar views to Motorola. Intel Corporation ("Intel") agrees that the 3650 MHz band has the potential to foster the introduction of advanced wireless services to the American public noting that the band has been allocated to provide licensed wireless broadband services in much of the rest of the world.[7] In contrast to the *Notice,* however, Intel believes that "for long range services where contention among service providers is likely . . .

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3 *Id.*

4 *Id.*

5 *Id.* at 3. In its comments, Motorola recognized that the provision of mobile/transportable broadband services would need to be provided on a limited basis given the requirements to protect incumbents in the band.

6 *Id.*

7 Comments of Intel Corporation, submitted July 29, 2004, at 1.

exclusive licensing can better promote quality of service and business certainty" than unlicensed operations.[8]

The Industrial Telecommunications Association ("ITA") supports the retention of a licensed allocation in the 3650 MHz band for next generation broadband services.[9] Citing the FCC's decision to allocate spectrum near 4.9 GHz for public safety broadband purposes, ITA argues that licensed spectrum use in the 3650 MHz band will allow "mission critical entities to provide broadband services similar or identical to those envisioned for unlicensed use, but with a more certain operating environment, yielding credibility for further investments in fixed broadband communications systems."[10] As an example of broadband services desired by its members, ITA refers to Motorola's Canopy technology which "permits private land mobile licenses to link remote video monitoring capabilities with legacy radio equipment, and connect to the Internet for virtually instantaneous access to information in critical situations, such as criminal record information in a law enforcement vehicle or utility pipe location information for construction crews."[11] ITA states that its members are hesitant to deploy Canopy despite its obvious benefits because of its reliance on unlicensed spectrum and concludes that a more certain and reliable spectral and geographic environment, would make it easier for private wireless users to justify the expense associated with employing more effective and efficient communications services for internal uses.[12]

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8 *Id.*

9 Comments of the Industrial Telecommunications Association at 5.

10 *Id.* at 2.

11 *Id.* at 4.

12 *Id.*

The American Petroleum Institute ("API") notes that the continued operation of the licensed and unlicensed private radio systems employed by petroleum and natural gas companies is absolutely essential to protecting lives, health and property, both in support of the day-to-day operations of these companies, as well as during responses to emergency incidents.[13] API believes that the utility of the 3650 MHz band "would be maximized by dedicating it exclusively (or at least primarily) for licensed operations."[14] API notes that while unlicensed Wireless Ethernet Radio equipment (both point- to-point and point-to-multipoint) has been a cost-effective tool to get IP-type connectivity distributed to remote locations, "[e]xperience has shown, however, that the potential for interference with unlicensed devices is substantial and that the actual distance that can be covered with unlicensed devices is often far less than what the equipment specifications suggest could be accomplished without interference."[15] API presumes that its for this reason that other countries have concluded that "there is a need for a coordinated/licensed version of wireless IP delivery systems for critical infrastructure companies, private businesses, municipalities and Wireless ISP's to use for the reliable delivery of IP-based services."[16]

Other commenters expressed concerns over the FCC's proposals to use the 3650 MHz band for unlicensed uses, principally out of concerns about interference to existing licensed operations.[17] While Motorola shares the Commission's vision of using the 3650 MHz band for broadband services, a review of the submitted comments reaffirms our belief that this goal will

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13 Comments of the American Petroleum Institute at 2.

14 *Id.* at 3.

15 *Id.* at 5.

16 *Id.*

17 *See, e.g.,* Comsearch Comments at 2; Comments of the Satellite Industry Association at 4; Coalition Of C-Band Constituents at 1.

be more readily achieved through a licensed environment. Motorola therefore urges the FCC to not preclude the use of this band for licensed operations through the premature authorization of unlicensed devices throughout the band.

In addition, Motorola reiterates its recommendation that the Commission include a mobile designation for this band.[18] As Motorola previously commented, mobile transmitters pose no greater interference threat to grandfathered earth stations than the "non-fixed" unlicensed transmitters that the Commission proposed to operate with up to 1 watt EIRP.[19] Mobile transmitters can easily apply the same techniques to ensure non-operation within the protected zones of the grandfathered earth stations that the Commission proposed to mandate for unlicensed "non-fixed" operation. Allowing this flexibility on a licensed basis will increase the likelihood that technologies will develop in the 3650 MHz band that will offer a combination of applications and features that promote efficient use of the spectrum.

Respectfully submitted,

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18 Comments of Motorola at note 10.

19 *Id.*